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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 6 1995

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

Subject: Revised Labels for Addressing the Application of Concentrated Sprays of Abamectin (Avermectin B₁) to Tree Crops. Impact on Various Pending and Registered Uses:
Almonds and Walnuts (PP#1F3973/FAP#1H5611)
Apples (PP#4F4345/FAP#4H5693)
Citrus (PP#8F3592/FAP#8H5550)
Pears (PP#1F3787).

No MRID#

DP Barcode# D216744, D217888, D217889

CBTS# 15760, 15983, and 15984

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In response to CBTS concerns with AGRI-MEK 0.15 EC label rates for low volume sprays, Merck has submitted revised labels (see Attachment) for all of their current and proposed tree crops. AGRI-MEK 0.15 EC (EPA Reg.# 618-98) is an emulsifiable concentrate containing 0.15 pounds active ingredient (avermectin) per gallon. The low volume (concentrated) orchard spray issue was originally raised in the review of PP#1F3973 (avermectin on tree nuts - memo of G.J. Herndon dated 11/26/91). In that memo, CBTS noted that, for concentrated orchard sprays, the amount of active ingredient applied should be proportional to tree size. This issue was also discussed in meetings with Merck on 9/8/94 and 2/28/95, and in the memo of G.J. Herndon dated 5/3/95 concerning PP#4F4345 (apples).



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Conclusions and Recommendation

The submitted labels adequately address CBTS concerns over the potential over-application of avermectin to orchards containing small trees when using low-volume (concentrate) sprays. CBTS recommends that RD replace the current label for citrus with the one submitted. The other uses (almonds, apples, pears, and walnuts) are not yet registered (due to other CBTS deficiencies/concerns), so the label issue will be addressed in those individual petitions.

Detailed Considerations

Labels

Almonds and Walnuts

Previously Proposed

For control of the following spider mites: two-spotted, Pacific, and strawberry, apply AGRI-MEK 0.15 EC at the rate of 10 to 20 fl.oz./A. (0.012 to 0.023 lb.ai./A.). For control of the European red mite, apply 20 fl.oz./A. (0.023 lb.ai./A.). Mix AGRI-MEK 0.15 EC with 1 gallon of paraffinic spray oil per acre and apply in a minimum of 40 gallons of water per acre using ground equipment only. Do not apply through any type of irrigation system. Apply product when mites first appear, and repeat application as needed to maintain control, not to exceed 20 fl.oz./A./application or 60 fl.oz./A./season (0.070 lb.ai./A./season). The minimum PHI is 21 days. Do not graze treated orchards.

The label states that AGRI-MEK 0.15 EC should be applied using conventional dilute or concentrate ground sprayers calibrated to deliver sufficient water for thorough coverage - the gallonage of spray will vary with the size and number of trees per acre and density of foliage. When using concentrate sprays, the amount of water is reduced but the amount of AGRI-MEK per acre should remain the same as for dilute sprays.

Currently Proposed (Draft Label 6/16/95)

For control of the following spider mites: two-spotted, Pacific, strawberry, and European red, apply AGRI-MEK 0.15 EC using ground equipment only, at the following rates:

<u>Pest</u>	<u>Dilute Spray</u> (fl.oz./100 gal.)	<u>Concentrate Spray</u> (fl.oz./A.)
mites	2.5 - 5.0 plus 0.25% paraffinic oil	10 - 20 plus 1 gal. of paraffinic oil/A. ¹

The dilute spray rate per 100 gallons is based on a standard volume of 400 gallons per acre. To determine the amount of product per acre for concentrate sprays, first determine the amount that would be required in a full cover dilute spray. Use the same amount of product per acre in concentrate sprays as would be required for the dilute sprays to the same orchard/grove. This may result in use of less than 10 fl.oz./acre on small trees. Do not make more than two applications in a growing season with a minimum of 21 days between applications. Do not exceed 20 fl.oz./A./application or 40 fl.oz./A./season (0.070 lb.ai./A./season). Do not apply in less than 40 gallons of water per acre. The minimum PHI is 21 days.

Apples

Previously Proposed

For control of tentiform leafminers and spider mites on apples, apply AGRI-MEK 0.15 EC (EPA Reg.# 618-98) using ground equipment only, at the rate of 10 to 20 fl.oz./A. (0.012 to 0.023 lb.ai./A.) depending on the extent of infestation. AGRI-MEK 0.15 EC should be applied in conjunction with 1 gallon of paraffinic crop oil per acre. AGRI-MEK 0.15 EC can be applied using conventional dilute or concentrate sprayers - gallonage of spray may vary with size and number of trees per acre and density of foliage. When using concentrate sprays, the amount of water is reduced, but the amount of AGRI-MEK 0.15 EC per acre should remain the same as for dilute sprays. Apply when established thresholds have been reached, but do not make more than 2 applications per growing season and do not exceed 40 fl.oz./A./growing season (0.046 lb.ai./A./season). Do not apply in less than 40 gallons of spray volume (water + oil) per acre. Do not apply through any type of irrigation system. The minimum PHI is 28 days.

Currently Proposed

For control of tentiform leafminers, European red mites, two-spotted spider mite, and McDaniel spider mite, apply AGRI-MEK 0.15 EC using ground equipment only, at the following

¹ The 0.25% paraffinic oil specified in the dilute spray is equivalent to the 1 gallon rate of the concentrate spray based on the standard 400 gallon per acre tree row volume.

rates:

<u>Pest</u>	<u>Dilute Spray</u> (fl.oz./100 gal.)	<u>Concentrate Spray</u> (fl.oz./A.)
mites and leafminers	2.5 - 5.0 plus 0.25% paraffinic oil	10 - 20 plus 1 gal. of paraffinic oil/A.

The dilute spray rate per 100 gallons is based on a standard volume of 400 gallons per acre. To determine the amount of product per acre for concentrate sprays, first determine the amount that would be required in a full cover dilute spray. Use the same amount of product per acre in concentrate sprays as would be required for the dilute sprays to the same orchard/grove. This may result in use of less than 10 fl.oz./acre on small trees. Do not make more than two applications in a growing season with a minimum of 21 days between applications. Do not exceed 20 fl.oz./A./application or 40 fl.oz./A./season (0.070 lb.ai./A./season). Do not apply in less than 40 gallons of water per acre. The minimum PHI is 28 days.

Citrus

Previously Approved by CBTS (RCB) (Dated 11/25/87)

For control of citrus rust mite, broad mite, and two-spotted spider mite, apply AGRI-MEK 0.15 EC using ground equipment only, at the following rates:

<u>Pest</u>	<u>Dilute Spray</u> (fl.oz./100 gal.)	<u>Concentrate Spray</u> (fl.oz./A.)
citrus rust mite and broad mite	1 - 2	5 - 20
two-spotted spider mite	2 plus 0.2% paraffinic oil	10 - 20 plus 1 gal. of paraffinic oil/A.

The dilute spray rate is based on application of 500 - 2000 gallons full cover dilute spray depending on tree height and planting density. Do not exceed 20 fl.oz. AGRI-MEK per acre per application.

<u>tree height</u>	<u>< 10'</u>	<u>10' to 12'</u>	<u>14' to 16'</u>	<u>18' +</u>
fl.oz./A.	5 - 10	7.5 - 15	10 - 20	15 - 20

For concentrate sprays, adjust the dosage to apply an amount per acre equal to that used in full cover dilute spray. Use the 5 fl.oz./acre rate only on trees less than 10 feet in height. Do not apply more than 60 fl.oz./A. in any 12 month period. The minimum PHI is 7 days.

Currently Registered (Agency Accepted 4/29/94)

For control of citrus rust mite, broad mite, two-spotted spider mite, citrus bud mite, and citrus leafminer, apply AGRI-MEK 0.15 EC using ground equipment only, at the following rates:

<u>Pest</u>	<u>Dilute Spray</u> (fl.oz./100 gal.)	<u>Concentrate Spray</u> (fl.oz./A.)
citrus rust mite	0.5 - 2	5 - 20
broad mite and two-spotted spider mite	1 - 2	10 - 20
citrus bud mite	1 - 2	10 - 20
citrus leafminer	- plus 0.2% paraffinic oil	10 - 20 plus 1 gal. of paraffinic oil/A.

The dilute spray rate per 100 gallons is based on a standard volume of 1000 gallons per acre. For concentrate sprays, adjust the dosage to apply an amount per acre equal to that used in full cover dilute spray. For control of citrus bud mite, use a minimum of 500 gallons per acre of spray mix with a minimum of 0.5% oil. For best results for citrus leafminer, use 100 - 150 gallons of spray mix applied to achieve outside coverage. Do not make more than three applications in a growing season with a minimum of 30 days between applications. Do not exceed 40 fl.oz./A./season (0.070 lb.ai./A./season). The minimum PHI is 7 days.

Currently Proposed

For control of citrus rust mite, broad mite, two-spotted spider mite, citrus bud mite, citrus leafminer, and citrus thrips, apply AGRI-MEK 0.15 EC using ground equipment only, at the following rates:

<u>Pest</u>	<u>Dilute Spray</u> (fl.oz./100 gal.)	<u>Concentrate Spray</u> (fl.oz./A.)
citrus rust mite	0.5 - 2	5 - 20
broad mite and two-spotted spider mite	1 - 2	10 - 20
citrus bud mite	1 - 2	10 - 20
citrus leafminer	-	5 - 10
citrus thrips	- plus 0.2% paraffinic oil	10 - 20 plus 1 gal. of paraffinic oil/A.

The dilute spray rate per 100 gallons is based on a standard volume of 1000 gallons per acre. To determine the amount of product per acre for concentrate sprays, first determine the

amount that would be required in a full cover dilute spray. Use the same amount of product per acre in concentrate sprays as would be required for the dilute sprays to the same orchard/grove. On small trees, this may result in use of less than 5 fl.oz./acre for control of citrus rust mite and citrus leafminer and less than 10 fl.oz./acre for control of broad mite, twospotted spider mite, citrus bud mite, and citrus thrips. For control of citrus bud mite, apply AGRI-MEK 0.15 EC at 10 - 20 fl.oz./A. in a minimum of 500 gallons per acre of spray mix with a minimum of 0.5% paraffinic spray oil in the final finished spray. For best results for citrus leafminer, use 100 - 150 gallons of spray mix applied to achieve outside coverage. For best results for citrus thrips, use 100 - 250 gallons of spray mix applied to achieve outside coverage. Do not make more than three applications in a growing season with a minimum of 30 days between applications. Do not exceed 40 fl.oz./A./season (0.070 lb.ai./A./season). The minimum PHI is 7 days.

Pears

Previously Proposed

For control of mites and pear psylla on pear and oriental pears, apply AGRI-MEK 0.15 EC (EPA Reg.# 618-98) using ground equipment only, at the following rates:

<u>Pest</u>	<u>Dilute Spray</u> (fl.oz./100 gal.)	<u>Concentrate Spray</u> (fl.oz./A.)
mites	2.5 - 5.0	10 - 20
psylla	plus 0.25% paraffinic oil	20 plus 1 gal. of paraffinic oil/A.

The dilute spray rate is based on a standard volume of 400 gallons per acre. If less than 400 gallons of dilute spray solution per acre is applied, use a minimum of 10 fl.oz./A. in the appropriate volume to obtain good coverage. Do not exceed 20 fl.oz./A./application (0.023 lb.ai.) and do not exceed 40 fl.oz./A./growing season (0.046 lb.ai.). For multiple applications, do not retreat within 21 days. Do not apply in less than 40 gallons of spray volume (water + oil) per acre. The minimum PHI is 28 days.

Currently Proposed

For control of two-spotted spider, McDaniel spider, European red, pear rust, and yellow mites, and pear psylla, apply AGRI-MEK 0.15 EC using ground equipment only, at the following rates:

<u>Pest</u>	<u>Dilute Spray</u> (fl.oz./100 gal.)	<u>Concentrate Spray</u> (fl.oz./A.)
mites and pear psylla	2.5 - 5.0 plus 0.25% paraffinic oil	10 - 20 plus 1 gal. of paraffinic oil/A.

The dilute spray rate per 100 gallons is based on a standard volume of 400 gallons per acre. To determine the amount of product per acre for concentrate sprays, first determine the amount that would be required in a full cover dilute spray. Use the same amount of product per acre in concentrate sprays as would be required for the dilute sprays to the same orchard/grove. This may result in use of less than 10 fl.oz./acre on small trees. Do not make more than two applications in a growing season with a minimum of 21 days between applications. Do not exceed 20 fl.oz./A./application or 40 fl.oz./A./season (0.070 lb.ai./A./season). Do not apply in less than 40 gallons of water per acre. The minimum PHI is 28 days.

Attachment - Proposed Labels

cc (with Attachment): PP#1F3973, PP#4F4345, PP#8F3592, PP#1F3787, RF,
G.J. Herndon.

cc (without Attachment): circu., E. Haeberer (section head)

RDI: TPSII Team: 10/5/95,
Branch Senior Scientist: R. Loranger: 10/5/95,
Branch Chief: M. Metzger: 10/5/95.

H7509C: CBTS: G.J. Herndon: 305-6362: CM#2, Rm. 804C: 10/4/95.

Chemistry Review dated 10/6/95 (100-895+100-898)

Page _____ is not included in this copy.

Pages 8 through 15 are not included in this copy.

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